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(71) Applicant(s)
Samsung Display Devices Co., Ltd
(Incorporated in the Republic of Korea)
575 Shin-Dong, Paldal-gu, Suwon City, Kyungki-do,
Republic of Korea

(72) Inventor(s)
Sang-Won Lee
Woo-Jong Lee
Bong-Soo Koh
Hyun-Suk Kim
Jong-Eun Lee
Jong-Hoe Koo
Si-Han Kim

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GB 2260844 A GB 2257554 A
Patent Abstracts of Japan Section P:P-167 vol. 18 no.36 & JP05065029

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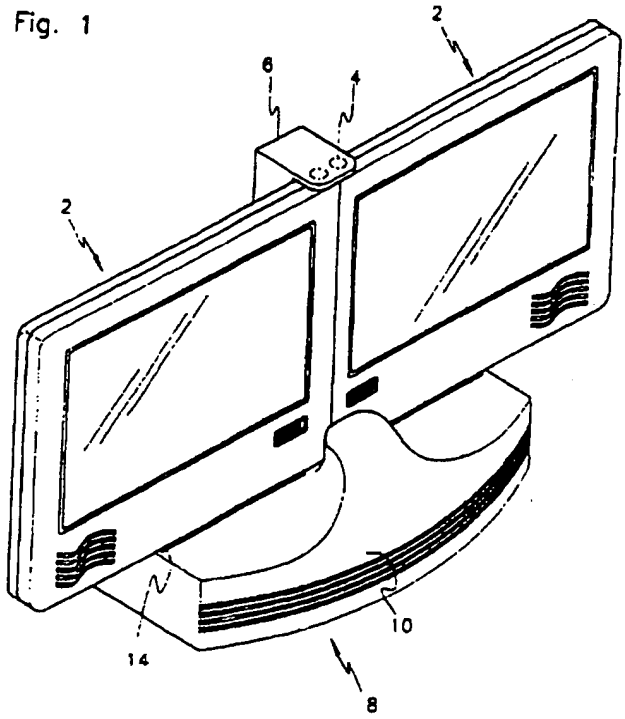
(74) Agent and/or Address for Service
Dibb Lupton Alsop
Fountain Precinct, Balm Green, SHEFFIELD, S1 1RZ,
United Kingdom

(54) Abstract Title
Multi-display monitor

(57) A multi-display monitor comprising a pair of display panels, being folding with respect to each other, and a base for supporting the display panels at an adjustable slant. Accordingly, the multi-display monitor is large scale, having the structure of at least two display panels 2 collapsibly connected by the hinges to side frame 6 and stably supported on the base 8. A number of display panels may be assembled into a module so that a multi-display screen for window is efficiently obtained at lower cost than that of the flat display originally produced as a single unit.

Fig. 1



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

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Fig. 1

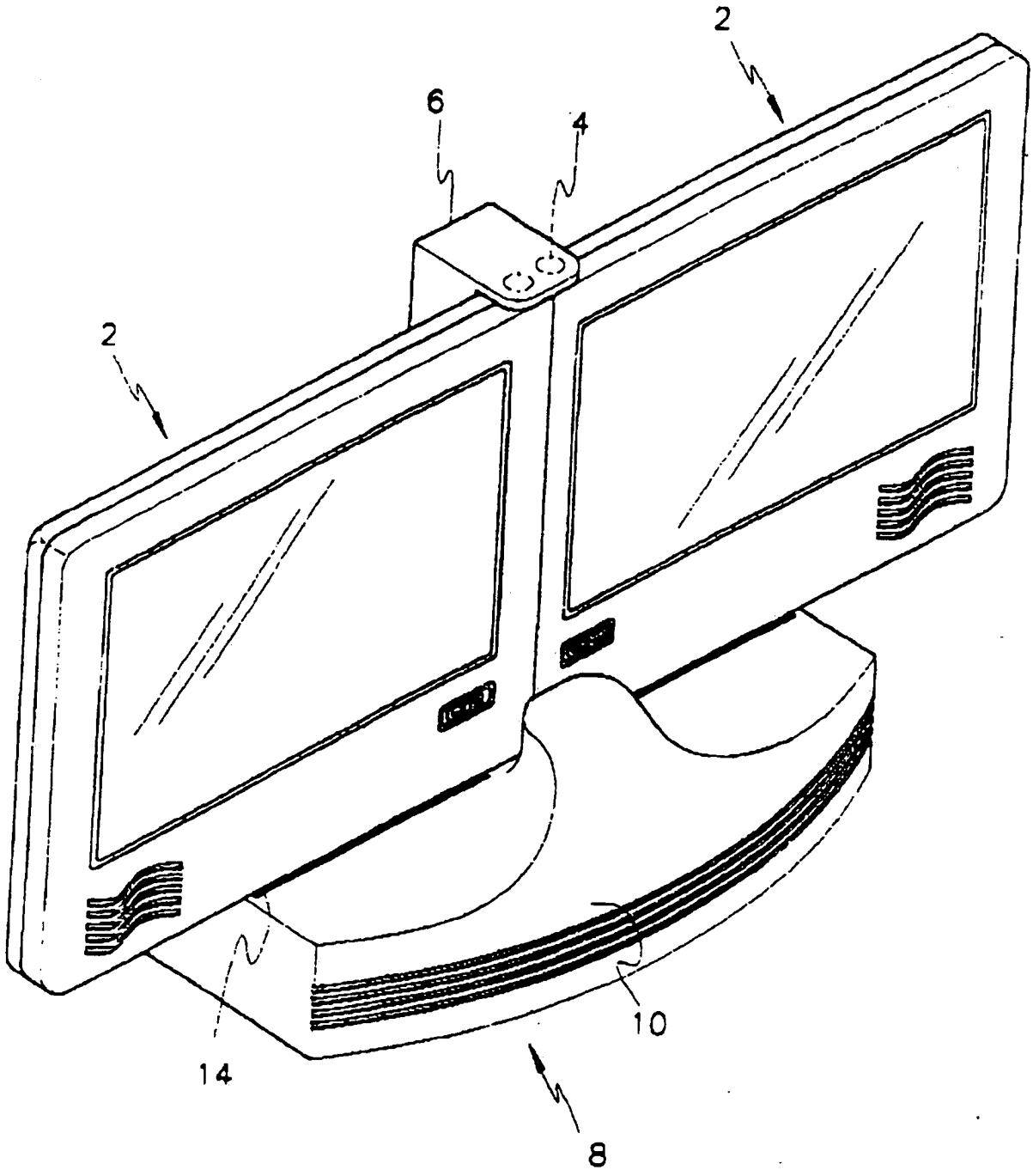


Fig. 2

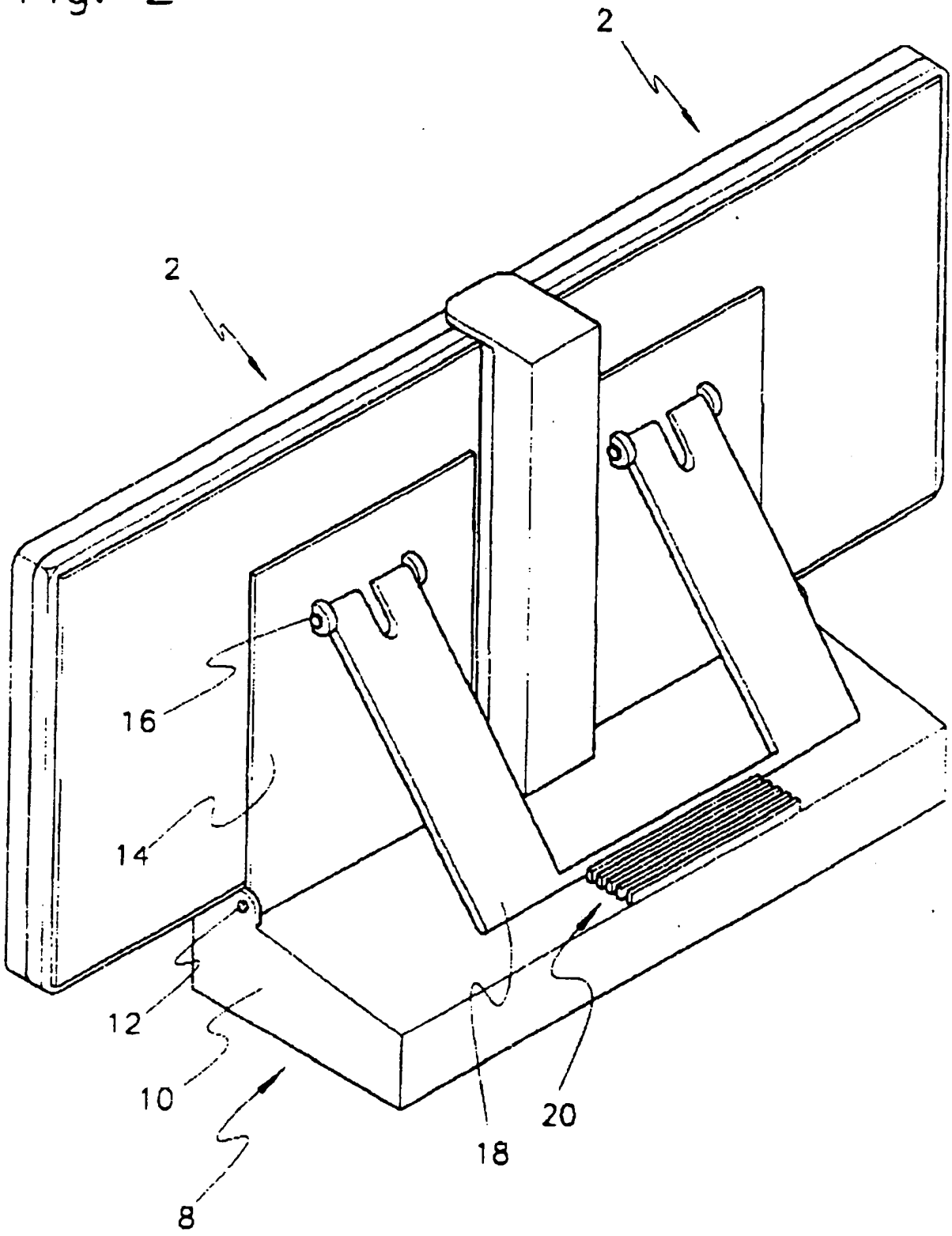


Fig. 3

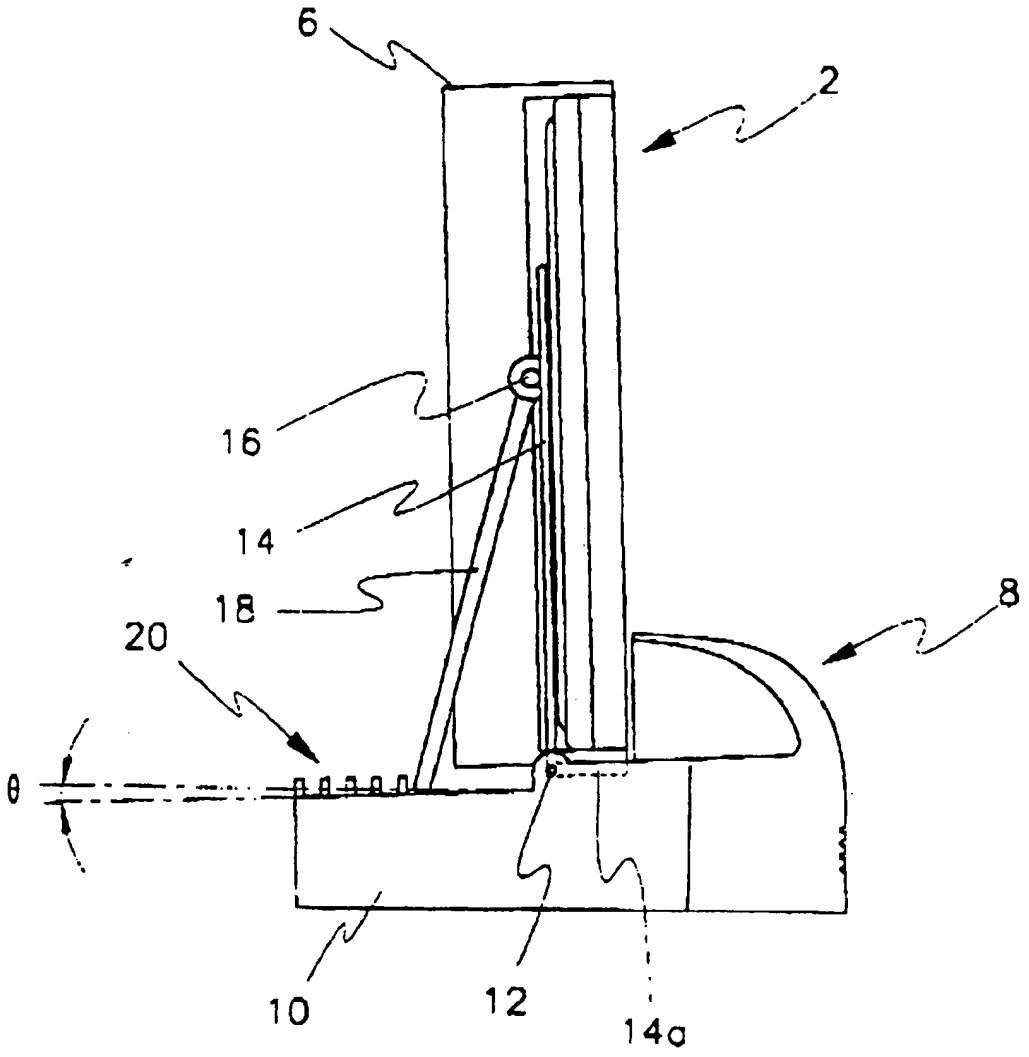
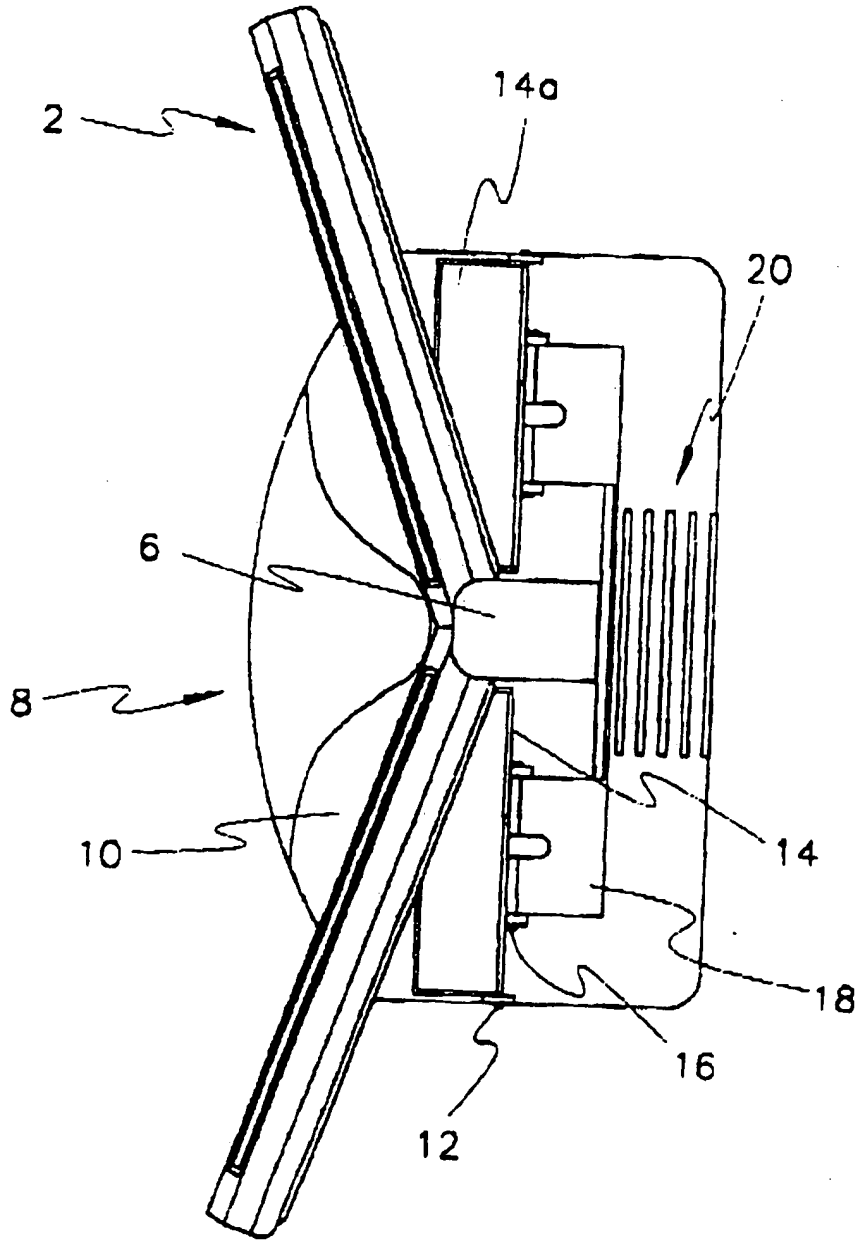


Fig. 4



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MULTI-DISPLAY MONITOR

BACKGROUND TO THE INVENTION

This invention relates to multi-display monitors having at least two display panels.

Various types of display monitor are known, such as CRT displays, liquid crystal displays (LCDs), thin film transistor LCDs, field emission displays (FEDs) and plasma display panels (PDPs). The display screens tend to be planarised because of the tendency to miniaturise portable electronic information processing devices such as notebook personal computers and PDA's. The display panels provided in portable devices are quite small, which can cause users eye strain.

A flat display for a monitor is electronically connected to a computer body for displaying output visual images, characters or icons, according to signals or data input via keyboard or mouse or programs executed. Such a flat display needs to be large-sized to accommodate multimedia or Windows screens, but the economic efficiency is low because of high production costs of large flat displays.

To overcome these problems, a collapsible structure of display panels is proposed in Korean Patent Application No. 96-41375. However, as the joint portion is not seen, the collapsible display panel has problems that supporting structure cannot be provided.

SUMMARY OF THE INVENTION

The present invention has been made in an effort to solve the above described problem.

Accordingly, the present invention provides a multi-display monitor comprising a base, a frame supported by the base and a pair of substantially flat display panels, in which the display panels are collapsibly connected by a hinge to

the frame. Each of the flat display panels may be a liquid crystal display, a field emission display or a plasma display panel. Preferably, the display panels are rotatable with respect to each other in the range of 0° to 180°.

Preferably, the base comprises a bottom portion, a slant plate hinged to the bottom portion and means for adjusting the angle of the slant plate. The slant plate may further include a staying portion for supporting the display panels. The means for adjusting the angle of the slant plate may comprise a strut hinged to the slant plate and an engagement portion in which a number of slots are formed to engage with the strut.

BRIEF DESCRIPTION OF THE DRAWINGS

Certain embodiments of the present invention will now be more fully described, by way of examples, in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of a multi-display monitor of the present invention;

FIG. 2 is a perspective view of the multi-display monitor of FIG. 1;

FIG. 3 is a side view of the multi-display monitor of FIG. 1;

FIG. 4 is a top plan view of the multi-display monitor of FIG. 1.

DETAILED DESCRIPTION OF THE INVENTION

FIGs. 1 and 2 show the perspective structure of a multi-display monitor of the present invention. The reference number 2 indicates flat display panels which may be an LCD, a FED, a PDP or the like.

The flat display panels 2 are jointed by hinges to respective sides of upper and lower portions of a side frame 6. The flat display panels 2 may thereby be rotated between 0° to 180° so that the panels 2 are folded together or spread apart, adjacent to each other. A base 8 is

provided to support the completely opened out panels 2. The base 8 comprises a bottom portion 10; slant plates 14, each pivotally connected by a hinge 12 to the bottom portion 10 for supporting the corresponding panel 2 and means for adjusting the angle of slant of plates 14 in discrete steps, for the comfort of the user.

The slant plates 14 are each provided with staying portion 14a to support the panels 2 (see FIG. 3). The means for adjusting the angle of slant of plates 14 comprises struts 18, each pivotally jointed by a hinge 16 to the slant plate, and an irregularity engagement portion 20 in which a number of slot-like engaging members are formed to engage with the lower end of the strut 18, to allow adjustment of the angle of the slant plate 14. The display panels 2 can be positioned to be supported on the staying portion 14a as well as being supported by the side frame 6 arranged between the slant plates 14. Therefore, the display panels 2 can be stably retained when the angle of the slant plate 14 or the angle between the panels 2 is changed.

The bottom portion 10 of the base 8 may be formed inclined at an angle θ in the range of 0° to 10° for comfortable use.

In accordance with the present invention, a multi-display monitor is obtained, being of large scale, having the structure of at least two display panels 2 collapsibly connected by the hinges to the side frame 6 and stably supported on the base 8.

According to the present invention, a number of display panels may be assembled into a module so that a multi-display window screen is efficiently obtained at lower cost than that of an equivalent flat display produced as a single unit.

Furthermore, there is an advantage that display panels and a base may be easily assembled to effectively perform one's

business. As the display panels 2 are collapsibly connected together, they may be easily collapsed for transporting. A large scale, portable display is thereby provided.

While this invention has been described in connection with a certain embodiment, it is to be understood that the invention is not limited to the disclosed embodiment, but, on the contrary, is intended to cover various modifications and equivalent arrangements. For example, irregularity portions 20 may engage with an engaging member provided on the strut 18 rather than with the end of the strut 18.

Also, slant plates 14 may be unitarily formed, provided that such a unitary slant plate is adapted to accommodate side frame 6. In addition, irregularity portions 20 may be located upon the strut 18, with one or more engaging members provided on the bottom portion 10 for engaging with irregularity portions 20. The strut 18 may be formed as separate struts 18, each provided with irregularity portions 20.

CLAIMS

1. A multi-display monitor comprising:
a base;
a frame supported by the base; and
a pair of substantially flat display panels;
in which the display panels are collapsibly connected by a hinge to the frame.

2. A multi-display monitor according to claim 1, in which each of the flat display panels is a liquid crystal display, a field emission display or a plasma display panel.

3. A multi-display monitor according to claim 1 or claim 2, in which the display panels are rotatable with respect to each other in the range of 0° to 180°.

4. A multi-display monitor according to any preceding claim, in which the base comprises a bottom portion, a slant plate hinged to the bottom portion and means for adjusting the angle of the slant plate.

5. A multi-display monitor according to claim 4, in which the slant plate further includes a staying portion for supporting the display panels.

6. A multi-display monitor according to claim 4 or claim 5, in which the means for adjusting the angle of the slant plate comprises a strut hinged to the slant plate and an engagement portion in which a number of slots are formed to engage with the strut.

7. A multi-display monitor substantially as described herein with reference to and/or as illustrated in the accompanying drawings.